

Amendments to the Claims:

Please amend claims 2, 8, 17, 23, 31 and 37 and cancel claims 1, 9-16, 24-30 and 38-49 (claims 46-49 were previously cancelled or withdrawn).

The following listing will replace all prior versions and listings of claims in the application.

1. (cancelled)

2. (currently amended) [The integrated data storage device controller integrated circuit of claim 1, wherein the data storage device comprises an] In an optical disc drive having [the one or more media surfaces comprising an optical disc, and the corresponding number of at least read devices comprises] a laser for at least reading an optical disc, a spindle motor for moving the optical disc, an actuator for moving the laser relative to the optical disc, a read device preamplifier coupled to the laser, and a servo control coupled to the actuator for driving the actuator in response to control signals, an integrated data storage device controller integrated circuit comprising:

a host interface for interfacing with a host computer;

at least one internal communications and control bus, for transferring stored data and control data to and from elements within the integrated data storage device controller and interconnected with the host interface to transfer stored data and control data to and from the integrated data storage device controller;

a read device data processor, coupled to the read device preamplifier and the at least one internal communications and control bus, for receiving and processing read device data from the read device preamplifier;

a motion control servo logic, coupled to the at least one internal communications and control bus, and to the servo control, for generating control signals for driving the servo control;

a disc controller, coupled to the at least one internal communications bus, for transferring stored data to the host interface; and

a microcontroller, coupled to the at least one internal communications bus, for generating control data to control devices within the integrated data storage device controller integrated circuit.

3. (original) The integrated data storage device controller integrated circuit of claim 2, wherein the optical disc drive comprises a CD-ROM drive and the optical disc comprises a CD-ROM.

4. (original) The integrated data storage device controller integrated circuit of claim 2, wherein the optical disc drive comprises a DVD drive, and the optical disc comprises a DVD.

5. (original) The integrated data storage device controller integrated circuit of claim 2, wherein the optical disc drive comprises a compact disc drive, and the optical disc comprises a compact disc.

6. (original) The integrated data storage device controller integrated circuit of claim 2, wherein the optical disc drive comprises a CD-R drive, and the optical disc comprises a CD-R.

7. (original) The integrated data storage device controller integrated circuit of claim 2, wherein the optical disc drive comprises a CD-RW drive, and the optical disc comprises a CD-RW.

8. (currently amended) [The integrated data storage device controller integrated circuit of claim 1, wherein the data storage device comprises an] In a floppy disk drive having [the one or more media surfaces comprising a magnetic floppy disk, and the corresponding number of at least read devices comprises] a read/write head for at least reading a magnetic floppy disk, a spindle motor for moving the magnetic floppy disk, an actuator for moving the read/write head relative to the magnetic floppy disk, a read device preamplifier coupled to the read/write head, and a servo control coupled to the actuator for driving the actuator in response to control signals, an integrated data storage device controller integrated circuit comprising:

a host interface for interfacing with a host computer;

at least one internal communications and control bus, for transferring stored data and control data to and from elements within the integrated data storage device

controller and interconnected with the host interface to transfer stored data and control data to and from the integrated data storage device controller;

a read device data processor, coupled to the read device preamplifier and the at least one internal communications and control bus, for receiving and processing read device data from the read device preamplifier;

a motion control servo logic, coupled to the at least one internal communications and control bus, and to the servo control, for generating control signals for driving the servo control;

a disc controller, coupled to the at least one internal communications bus, for transferring stored data to the host interface; and

a microcontroller, coupled to the at least one internal communications bus, for generating control data to control devices within the integrated data storage device controller integrated circuit.

9-16. (cancelled)

17. (currently amended) [The data storage device of claim 16, wherein the data storage device comprises] An optical disc drive comprising:

[the one or more media surfaces comprises an optical disc, and the corresponding number of at least read devices comprises] a laser for at least reading an optical disc;

a spindle motor for moving the optical disc;

an actuator for moving the laser relative to the optical disc;

a read device preamplifier, coupled to the laser;

a servo control coupled to the actuator, for driving the actuator in response to control signals; and

an integrated data storage device controller integrated circuit comprising:

at least one internal communications and control bus, for transferring stored data and control data to and from elements within the integrated data storage device controller

and with a host interface to transfer stored data and control data to and from the integrated data storage device controller;

a read device data processor, coupled to the read device preamplifier and the at least one internal communications and control bus, for receiving and processing read device data from the read device preamplifier;

a motion control servo logic, coupled to the servo control, for generating control signals for driving the servo control;

a disc controller, coupled to the at least one internal communications bus, for transferring stored data to the host interface; and

a microcontroller, coupled to the at least one internal communications bus, for generating control data to control devices within the integrated data storage device controller integrated circuit.

18. (original) The data storage device of claim 17, wherein the optical disc drive comprises a CD-ROM drive and the optical disc comprises a CD-ROM.

19. (original) The data storage device of claim 17, wherein the optical disc drive comprises a DVD drive, and the optical disc comprises a DVD.

20. (original) The data storage device of claim 17, wherein the optical disc drive comprises a compact disc drive, and the optical disc comprises a compact disc.

21. (original) The data storage device of claim 17, wherein the optical disc drive comprises a CD-R drive, and the optical disc comprises a CD-R.

22. (original) The data storage device of claim 17, wherein the optical disc drive comprises a CD-RW drive, and the optical disc comprises a CD-RW.

23. (currently amended) [The data storage device of claim 16, wherein the data storage device comprises] A floppy disk drive comprising:

[the one or more media surfaces comprises a magnetic floppy disk, and the corresponding number of at least read devices comprises] a read/write head for at least reading a magnetic floppy disk;

a spindle motor for moving the magnetic floppy disk;

an actuator for moving the read/write head relative to the magnetic floppy disk;

a read device preamplifier, coupled to the read/write head;

a servo control coupled to the actuator, for driving the actuator in response to control signals; and

an integrated data storage device controller integrated circuit comprising:

at least one internal communications and control bus, for transferring stored data and control data to and from elements within the integrated data storage device controller and with a host interface to transfer stored data and control data to and from the integrated data storage device controller;

a read device data processor, coupled to the read device preamplifier and the at least one internal communications and control bus, for receiving and processing read device data from the read device preamplifier;

a motion control servo logic, coupled to the servo control, for generating control signals for driving the servo control;

a disc controller, coupled to the at least one internal communications bus, for transferring stored data to the host interface; and

a microcontroller, coupled to the at least one internal communications bus, for generating control data to control devices within the integrated data storage device controller integrated circuit.

24-30. (cancelled)

31. (currently amended) [The method of claim 30, wherein the data storage device comprises] In an optical disc drive having [the one or more media surfaces comprises an optical disc, and the corresponding number of at least read devices comprises] a laser for at least reading an optical disc, a spindle motor for moving the optical disc, an actuator for moving the laser relative to the optical disc, a read device preamplifier, coupled to the laser, a servo control coupled to the actuator, for driving the actuator in response to control signals, an integrated data storage device controller integrated circuit comprising at least one internal communications and control bus, for transferring stored data and control data to and from elements within the integrated data storage device controller and interconnected with a host interface to transfer stored data and control data to and from the integrated data storage device controller, a read device data processor, coupled to the read device preamplifier and the at least one internal communications and control bus, for receiving and processing read device data from the read device preamplifier, a motion control servo logic, coupled to the servo control, for generating control signals for driving the servo control, a disc controller, coupled to the at least one internal communications bus, for transferring stored data to the host interface, and a microcontroller, coupled to the at least one internal communications bus, for generating control data to control devices within the integrated data storage device controller integrated circuit, a method of testing the integrated circuit data storage device controller, comprising the step of:

selectively multiplexing outputs of one or more of the disc controller, the microcontroller, and the read device data processor with one or more I/O pins such that the integrated circuit may selectively output signals from one or more of the disc controller, the microcontroller, and read device data processor.

32. (original) The method of claim 31, wherein the optical disc drive comprises a CD-ROM drive and the optical disc comprises a CD-ROM,

33. (original) The method of claim 31, wherein the optical disc drive comprises a DVD drive, and the optical disc comprises a DVD.

34. (original) The method of claim 31, wherein the optical disc drive comprises a compact disc drive, and the optical disc comprises a compact disc.

35. (original) The method of claim 31, wherein the optical disc drive comprises a CD-R drive, and the optical disc comprises a CD-R.

36. (original) The method of claim 31, wherein the optical disc drive comprises a CD-RW drive, and the optical disc comprises a CD-RW.

37. (currently amended) [The method of claim 30, wherein the data storage device comprises] In a floppy disk drive[,] having [the one or more media surfaces comprises a magnetic floppy disk, and the corresponding number of at least read devices comprises] a read/write head for at least reading a magnetic floppy disk, a spindle motor for moving the magnetic floppy disk, an actuator for moving the read/write head relative to the magnetic floppy disk, a read device preamplifier, coupled to the read/write head, a servo control coupled to the actuator, for driving the actuator in response to control signals, an integrated data storage device controller integrated circuit comprising at least one internal communications and control bus, for transferring stored data and control data to and from elements within the integrated data storage device controller and interconnected with a host interface to transfer stored data and control data to and from the integrated data storage device controller, a read device data processor, coupled to the read device preamplifier and the at least one internal communications and control bus, for receiving and processing read device data from the read device preamplifier, a motion control servo logic, coupled to the servo control, for generating control signals for driving the servo control, a disc controller, coupled to the at least one internal communications bus, for transferring stored data to the host interface, and a microcontroller, coupled to the at least one internal communications bus, for generating control data to control devices within the integrated data storage device controller integrated circuit, a method of testing the integrated circuit data storage device controller, comprising the step of:

selectively multiplexing outputs of one or more of the disc controller, the microcontroller, and the read device data processor with one or more I/O pins such that

the integrated circuit may selectively output signals from one or more of the disc controller, the microcontroller, and read device data processor.

38-49. (cancelled)